

REMARKS

The Claims were 1-5. Claim 1 has been amended, claims 2-4 have been canceled and claim 6 has been added. Thus, Claims 1, 5 and 6 are pending in this case all to more clearly and distinctly claim Applicant's invention. New Claim 6 introduces no new matter and is fully supported by the specification. Applicant respectfully request entry of the amendments as they place the application in condition for allowance or in better condition for possible appeal.

Claim 1 has been amended to add that the water impermeable sheet is transparent, the surface of the analyte storable area is rendered hydrophilic and the necessary reagent is coated. Support for this amendment appears, for example, in the specification at page 2 lines, 22-27; page 3, lines 1-2; page 4, lines 8-9; and page 6, lines 8-12 and 27. Further, the limitations of Claims 2-4 have been incorporated into Claim 1. Support for the location of the concavities, grooves, and projections as claimed in amended Claim 1 may be found at page 4, lines 20-21. New claim 6 depend appropriately from Claim 1 and introduce no new matter. Support for the thickness of the water-impermeable sheet as claimed in Claim 6 may be found on page 4, line 12 of the specification. Accordingly, it is respectfully submitted that no new matter has been added by the amendments.

In the parent case, Examiner rejected Claims 1 and 5-7 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent 5,843,767 to Beattie. Applicant would like to submit the following observations concerning Beattie to the extent that the rejection in the parent case applies.

Beattie does not disclose, teach or suggest the presented claimed invention. Beattie discloses an apparatus for sequencing by hybridization of DNA molecules not the dry analytical

element of the present invention. As a result, the presently claimed invention discloses the following different elements from Beattie.

First, Beattie discloses an apparatus that consists essentially of a substrate, an upper reservoir and a sealed chamber. See Figure 2; Col. 9, lines 10-16.

Second, the disclosed substrate in Beattie is water-permeable because it has passages at the bottom of the wells. See Figure 2; Col. 6, lines 19-20. In contrast, the present invention claims a dry analytical element consisting essentially of a water-impermeable transparent sheet.

Third, Beattie also discloses that the sample wells may be formed from water impermeable material such as glass or silicon. See Col. 1, lines 34-35. This differs from the present invention in that Beattie does not disclose a water-impermeable sheet let alone a transparent sheet to measure the optical change of the specimen tested in the dry analytical element from the reverse side. The disclosed substrate in Beattie is not transparent since it is formed from nanochannel glass or porous silicon. See Col. 1, lines 34-35.

Fourth, Beattie does not disclose an analyte storable area that is rendered hydrophilic like the present invention. Beattie only teaches a substrate that uses a hydrophilic material at col. 13, lines 20-23.

Fifth, Applicant agrees with the Examiner that Beattie does not teach using 1-100 microliter sized wells. Also, note that the holding capacity of the present invention is not of a well but of the analyte storable area. Accordingly, Beattie does not teach an analyte storable area so coating a necessary reagent onto the analyte storable area or a rendered hydrophilic analyte storable area is also not taught.

Lastly, the apparatus of Beattie does not analyze one analytical item like the present invention but instead analyzes many oligonucleotides.

The present claims recite that the dry analytical element consists essentially of a water-impermeable transparent sheet that comprises an analyte storable area. The surface of the analyte storable area is rendered hydrophilic and is composed of concavities, grooves, or projections that is capable of holding a 1-100 μ l liquid specimen. The analyte storable area contains a reagent necessary for a designated or designed analysis being coated in dry state so a liquid specimen containing an analyte develops in whole planar directions in substantially equal volume when it is supplied on the sheet.

More specifically, in the dry analytical element of the present invention, a liquid specimen is deposited on the analyte storage area and develops in whole planar direction. The volume of 1 to 100 microliters develops horizontally similar to the conventional dry analytical element. When this happens, the analyte in the liquid specimen chemically reacts with the necessary reagent and color development or other optical change while induced is measured. The spreading of the liquid in whole planar directions in substantially equal volume per unit area is important to the present invention.


In the apparatus of Beattie, the liquid sample supplied is a quantity capable of filling all wells so as not to be spilled and then the liquid sample flows vertically to penetrate the wells. Accordingly, the apparatus of Beattie is quite different from the invention. Beattie does not teach the spreadability of the substrate. Further, the apparatus of Beattie requires a frame forming the upper reservoir to supply liquid to all wells. The upper reservoir frame would be undesirable to the present invention because it inhibits the uniform spreading of the liquid specimen. Thus, the Applicant believes that the amended invention is not obvious over the

teaching of Beattie since Beattie does not teach, disclose or suggest the present claims.

In view of the remarks presented herein, it is respectfully submitted that the present application is in condition for final allowance and notice to such effect is requested. If the Examiner believes that additional issues need to be resolved before this application can be passed to issue, the undersigned invites the Examiner to contact him at the telephone number provided below.

Respectfully submitted,

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